

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 13 (Cancelled).

14. (New) A method for monitoring a reference half cell of a measuring point also includes, a measuring half cell, for determining and/or monitoring an ion concentration of a medium, the ion concentration of the medium being determined on the basis of at least one measurement signal determined between the measuring half cell and the reference half cell, comprising the steps of:

intermittently operating the measuring point in an operating mode and in a test mode;

measuring the ion concentration in the operating mode; and

checking the proper functioning of the reference half cell in the test mode.

15. (New) The method as claimed in claim 14, further comprising the step of: determining the noise component of the measurement signal in the test mode and in the operating mode.

16. (New) The method as claimed in claim 15, further comprising the steps of: activating an impedance in the test mode in the measuring circuit for determining the noise component; and

changing the impedance in the operating mode.,

17. (New) The method as claimed in claim 16, wherein:
an impedance-changing element is activated for the purpose of changing the impedance.

18. (New) The method as claimed in claim 17, wherein:
a switch is actuated as the impedance-changing-element, which is connected in parallel with the impedance for the purpose of changing the impedance.
19. (New) The method as claimed in claim 14, further comprising the steps of:
measuring the noise components of the measurement signals in the operating mode and in the test mode;
recognizing a malfunctioning of the reference half cell on the basis of the relationship of the changes of the noise components in the operating mode and in the test mode;
outputting a corresponding report.
20. (New) The method as claimed in claim 19, further comprising the steps of:
continually storing the noise components of the measurement components, or the relationships of the changes of the noise components of the measurement signals in the operating mode and in the test mode; and
outputting a report, concerning after which length of time the reference half cell will probably exhibit a malfunction.
21. (New) An apparatus for monitoring a reference half cell of a measuring point for determining and/or monitoring an ion concentration of a medium, said measuring point also including a measuring half cell, the apparatus comprising:
said measuring point;
a measuring circuit located between the measuring half cell and the reference half cell; and
a control/evaluation unit, which determines the ion concentration of the medium on the basis of a measurement signal determined in said measuring circuit, wherein:
said control/evaluation unit operates the measuring point intermittently in an operating mode and in a test mode; and

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said control/evaluation unit determines the ion concentration of the medium in the operating mode and checks the proper functioning of the reference half cell in the test mode.

22. (New) The apparatus as claimed in claim 21, wherein:

in said measuring circuit, an impedance is provided, which is changed, preferably short-circuited, in the operating mode and is added into said measuring circuit in the test mode.

23. (New) The apparatus as claimed in claim 22, further comprising:

an impedance changing element, which is connected in parallel with the impedance; and

said impedance changing element is actuated by said evaluation/control unit.

24. (New) The apparatus as claimed in claim 21, wherein:

said control/evaluation unit interprets a change of the relationship of the noise components in the operating mode and in the test mode as an indication that the reference half cell is working correctly, as soon as the change lies above a predetermined threshold value.

25. (New) The apparatus as claimed in claim 24, wherein:

said control/evaluation unit outputs a malfunctioning of the reference half cell, when the relationship of the noise components of the measurement signal in the operating mode and in the test mode is approximately unchanged.

26. (New) Apparatus as claimed in claim 24, wherein:

said control/evaluation unit uses statistical evaluation methods for recognizing a malfunctioning, or the correct working, of the reference cell.